



Left: A Guided Wave Inspection performed with a collar at the point of soil to air transition. **Right:** A GUL monitor on above ground piping

Guided Wave Ultrasonic (GUL) Inspection Services

OVERVIEW

While traditional inspection methods provide value to plant operators, many have begun condition-based inspection programs aimed at boosting their mechanical integrity and preventive maintenance programs. With this in mind, many plants have chosen to inspect their piping systems using Guided Wave UT (GUL) Inspection. The benefits include:

- Rapid, safe inspection of large piping sections, often with no scaffolding
- Minimal insulation removal for Corrosion Under Insulation (CUI) inspections
- Pinpointing and characterization of localized damage length and depth
- Excellent tool for cased road crossings and unpiggable pipe
- Detection of point of contact corrosion without lifting pipe, avoiding potential leaks & protecting the environment

In the hands of an experienced technician, Guided Wave can locate and characterize defects internally and externally and will pick up cracking in many cases. The benefits of this program include increased efficiency of a plant's

inspection budget and minimizing maintenance upsets due to piping system failures. The latest generation Guided Wave equipment provides adjustable transducers capable of running multiple frequencies and wave forms, characterizing defects more accurately than ever before.

Guided Wave can be used in many applications such as CUI, point of contact, road crossings, soil to air transitions, offshore above the surface and subsea by diver or ROV deployment.

CASE STUDY: REFINERY PIPING INSPECTION

MISTRAS was contracted by a major US refinery to perform Guided Wave Inspections on a variety of piping systems including elevated, buried, insulated and piping resting on supports. These systems were chosen in order to determine the viability of using long range guided waves as a screening tool to identify specific damage mechanisms such as soil-to-air interface, corrosion under insulation and touch point corrosion. One of the refinery's primary reasons for contracting MISTRAS was the ability to provide highly qualified ultrasonic inspectors with experience in performing Guided Wave Inspections.

A Guided Wave inspection is performed by placing a collar around the pipe section, including stripping an area approximately 24" wide if the system is insulated, and then performing the test. Each of these individual scans is termed a "shot". During this project MISTRAS performed over 2000 shots looking for various damage mechanisms.

RESULTS: 99% CORRELATION

After performing the Guided Wave inspection, a variety of follow-up techniques were used to "prove up" the results, including manual ultrasonics, semi automated ultrasonics and material sectioning of suspect areas. Refinery management concluded that the Guided Wave inspection performed by MISTRAS' experienced technicians yielded a reliability correlation factor of 99%. The 1% inaccuracy occurred in areas that were conservatively identified as a potential discontinuity and after further evaluation were considered acceptable.

For more information:

Please call 1-609-716-4000 or visit us on the web at www.mistrasgroup.com.

WORLDWIDE HEADQUARTERS:

195 Clarksville Rd •
Princeton Jct, NJ 08550 • USA
T: +1.609.716.4000 • F: +1.609.716.0706
E-MAIL: sales@mistrasgroup.com

Visit our website for an office near you
www.mistrasgroup.com

